Green Support and the Use of Information Technology Products

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Abstract

Nowadays people need technology in their daily life. This fact involves endless manufacturing of IT products. It increases the environmental problem. Concerned parties know that green IT products and green businesses are eco-saviors. The problem is lack of the green knowledge. This paper proposes and tests a framework that predict consumer intentions to support eco-friendly IT products and businesses. Structural equation modeling techniques was employed for hypothesis testing. The result suggests that to gain support from consumers, there are five criteria: belief in the benefits of a green IT, voluntary spending extra price, green-labels recognition, environmental concerns and influence from green policies/culture. However, social influence was insignificant in the intention to support green IT products. Increasing educational experiences and age strengthen the skepticism about the green IT benefits. The resources sacrifices become stronger with the higher educational experience. The influence of environmental concern is strengthener along with age.
Keywords: Green intention, environmental friendly, green IT adoption, green purchasing

1. Introduction

Environmental responsibility and concern of individuals and organizations are increasing. Environmental friendly studies have been receiving growing attention from researchers and practitioners in various study fields. There are some examples of green study trends, such as a study of drivers of green innovation investment [1], green image perception [2], green certification perception [3], green image and social impact [4], green practices/purchasing [5] and green organizational culture [6]. A rapid increasing of environmental-friendly research implied necessities of the topic.

People realized that technology became a lubricator of daily life [7-9]. Although humans perceived that using of technological products pollutes the environment, the products never have been denied. Consequences are, for examples, a sharp increase of electronic waste (e-waste) deriving from the information technology (IT) products. Accordingly, IT is usually addressed as a source of an environmental problem unless it is environmental friendly.

Green IT refers to practices and studies from raw materials to the disposal of an IT product, with minimum damage to the environment [7, 9, 10]. Green IT products will be optimal regarding energy efficiency, reduced greenhouse gases emission, recycling and other eco-beneficial characteristics. There are symbols, such as the Energy Star, on the products that indicate the level of eco-friendliness, which are easily to be spotted by consumers. In order to obtain the symbols, a technological product must be designed to have reparability, upgradability, energy efficiency and recyclability (or simplicity of clean disposable) [10].

Therefore, the more green IT products are adopted means major advancement of sustainable development.

A major problem is only a few people are intended to use green IT products. Not only green IT products, but also other green products/services are ignored by consumers due to ignorance [11-13], skepticism [14-17], a lack of knowledge [3], and a lack of social encouragements [4]. Technology manufacturers require a trustable green image for green products distribution [4-6, 18]. Lack of it means the poor credibility of a firm and a product. Accordingly, when consumers hesitate to purchase green IT products, sustainable development will be paused or pushed backwards.

Many social investigators found various factors of green acceptance behavior and intention, for example, individual environmental concerns [19], hedonic benefits of good citizenship [3, 20], green organizational culture (e.g., workplace and university) [2, 5, 18, 21], general knowledge of green IT [3] and acceptance of reduced technological product functionality [22]. However, these factors could give different results in different cultures.

This study focuses on consumer intention to purchase green IT product as a primary objective. Thus, consumers are key-stakeholders of the study framework. From previous research agenda by Kurkoon et al. [9], this study tests the framework to study the individual intentions to support a green IT product and a green imaged business. This study majorly focuses on seven questions: (1) Does the perception of green IT benefits influence the individual intention to purchase/use green IT products?, (2) What is the sacrificial extent of an individual for the environmental friendliness regarding IT products?, (3) Does the green label recognition influence the individual intention to purchase/use green IT products?, (4) Does the social influence impact the individual intention to purchase/use green IT products?, (5) How strong is an influence of environmental concerns to the individual intention to purchase/use green IT products?, (6) Does organizational environmental policy influence the attitudes of related people regarding a green IT product?, and (7) Does the individual intention to support green IT products impact the intention to support green-imaged businesses?

Although there is countless number of green IT acceptance studies, the framework to predict green IT product acceptance intention/behavior is not at a dead-end yet. There are opportunities to study in different cultures, which could provide new knowledge to study fields. Thus, more studies in the context are essential.

The remaining parts of the paper are organized as follows: Section 2 presents the model development. Section 3 shows the research methodology. Section 4 is hypothesis testing. Section 5 is the result of the hypothesis testing. Section 6 discusses the research findings. Section 7 explains limitation of the study. Section 8 concludes the research and guides future research.

2. Model Development

2.1. Stages of green IT adoption

A timeline of green IT adoption is vast without categorization. Previous agenda [9] suggested that the adoption processes can be listed into three major stages (Table 1).

- *Green IT Introduction* – A society motivates an individual in regard to the importance of green IT products, and green IT products promulgate through communication within society. According to prior studies, Shannon and Weaver's [23] *Technical level*, *Semantic level*, Mason's [24] *Production*, *Product*, DeLone and McLean's [25, 26] *Systems Quality* and *Information Quality* (which lately includes *Service Quality*) are related to transmitting and receiving a message [9]. In this stage, a participant will experience green IT product, perceive and memorize its advantages and disadvantages. Social impact has a role in this phase.

Table 1. Stages of green IT adoption (Kurkoon et al. [9])

Study	**Stage**						
Shannon and Weaver	Technical Level		Semantic Level		Effectiveness (or Influence) Level		
Mason	Production		Product		Receipt	Influence on Receipt	Influence on System
DeLone and McLean (1992)	System Quality		Information Quality		Use	User Satisfaction	Individual Impact / Organizational Impact
DeLone and McLean (2003)	System Quality	Information Quality	Service Quality		Use / Intention to Use	User Satisfaction	Net Benefit (Individual + Org.)
This Study	Green IT Introduction				Green Individual Acceptance		Green Org. Impact

- *Green Individual Acceptance* – An individual recognizes the significance of the green IT product and voluntarily uses it. Mason [24] broke down Shannon and Weaver's [23] *Effectiveness level* into two sections that were an individual level and a system level (e.g., organization, country, society). In the individual level, a participant will decide to adopt or refuse a green IT product. However, it also depends on an individual ethical concern [9].
- *Green Organizational Impact* – An individual shows intention to purchase product from companies that have an environment-friendly corporate image. The remaining levels indicated potential impact from the individual level to the organizational level (e.g., organization, society, university) and vice versa.

2.2. Constructs of Green Introduction

Perceived Green Benefit **(PGB)** – Purchasing is an act to obtain a product when a buyer expects that the product can help the buyer to fulfill his/her requirement. The action partially based on acquired information/knowledge [3, 4]. Therefore, information about green benefits and values is significant to the intention to obtain green IT product.

The prefix 'green' means environmental friendliness. There is a green indication of a product. For example, the Energy Star is an indicator of energy-efficiency. Energy-efficiency is one of the green IT benefits that can be perceived by consumers. Other benefits of green IT that may be perceived are reduction of electronic waste (e-waste) generation, negative impact on health and psychological benefit. These green benefits are knowledge, which is important to the intention to purchase green products/services [4]. In Diffusion of Innovation (DOI), an innovation must be perceived as being better than the idea it supersedes [27, 28] and people will accept it. For example, an energy-saving attribute will have a magnetizing of consumers to some extent.

Psychological benefit is also important in this context. Unified Theory of Acceptance and Use of Technology (UTAUT) has added Hedonic Motivation (a construct) to observe fun/pleasure in technology usage [29]. Consumer satisfaction partially comes from emotional benefit [3]. There is less enjoyment in using a green IT product, but there will be ethical participation instead [20]. For example, between Smartphones with and without eco-friendliness, there will be no difference in usage complexity, but there can be some dissimilarity in perceived eco-rightness.

Gender, age and educational experience might have a modification with this construct. Females are more environmentally conscious than males [30, 31]. Respondents who were born between the 1980s to late 1990s are possibly the greenest generation [4]. Experience of green IT acceptance is beyond abstract to be measured, this study selects educational level as a moderator instead according to Wai-ling's [32] discovery. Thus, the three moderators may have interaction with a perception of a green IT benefit.

Hypothesis 1: Perceived Green Benefits of an IT product positively influences the intention to purchase/use green IT product and the effect can be modified by age, gender and educational experience.

Resource Sacrifice **(RS)** – Worthiness of a product/service is always a touchstone for buyers. In this regard, a proper confluence between the price and value is significant to technology adoption, which was affected by age and gender [29]. Concerning a green IT product, if a manufacturer announced that there is an additional price to 'greenify' a product, many consumers will hesitate to pay for it. It depends on how great personal eco-rightness is.

Another dimension is product capability sacrifice. Dropping performance or functionality of a technology product is one of the 'greenifying' methods (to make it more eco-friendly). This often causes consumer dissatisfaction. Nevertheless, female consumers are less concerned about performance than male consumers [22]. Perhaps there are different degrees of eco-generosity between genders [33, 34].

Temporal sacrifice is another element. Generally speaking, time is an expendable resource for some consumers. Consumers may need more time for product comparison; measuring the cognitive tradeoff between product price and product functionality. All these three resources are important to purchasing behavior [37]. However, if a consumer took an unreasonably long period of time for just one product, he/she might lose interest.

These three sacrifices, which are monetary sacrifice, temporal sacrifice and product capability sacrifice, are essential in purchasing of a green IT product. As discussed in prior studies (e.g., [4, 22, 29, 33, 34]), moderating effects of gender and age are expected to be found.

Hypothesis 2: Resource sacrifice positively influences the intention to purchase/use green IT product and the effect can be modified by age and gender.

Noticeability **(NA)** – Term 'Noticeability' means an ability to notice and understand eco-labels. When consumers have been asked about willingly participating in green product support, they are mostly positive. In contrast, asking them if they know which products are green, 'I have no idea' is a likely answer [11-13]. Consumers may have the intention to support a green product, but they may not intend to learn about the green indicators and characteristics.

Basically, indications on a product inform buyers that it is safer for the environment [10]. When consumers have no understanding of the green indicators, green and non-green products are substitutable [38]. This implies that noticeability is significant to green products/service consumption [3], but some studies indicated its low influence (e.g., [14-17]). This paper suggests that the higher green noticeability of a consumer translates into the higher the intention to purchase/use green IT products. Consumer's comprehension of the green labels is likely to be subjective knowledge [3]. Accordingly, the knowledge of green labels can be measured by observing individual recognition and understandability of environment-friendly symbols as in the study of Zhao et al. [39]. This study uses a three-point scale to measure participant knowledge regarding six eco-indicators.

Hypothesis 3: Noticeability of green labels positively influences the intention to purchase/use green IT product.

Social Influence **(SI)** – Researchers regard the social norm as one of the drivers of individual decision and behavior (e.g., [27-29]). Venkatesh et al. [29] redefined Social Influence as "the degree to which the consumer perceives that influential people, including family and friends, believe the consumer had better use a particular technology." Social factors has been found as a driving factor on an acceptance of green IS/IT in many studies.

Media is not an ignorable ingredient of a social factor; television, radio, newspaper, the internet (and the likes) influence on an individual [28]. In this respect, media is always a tool for commercial purposes. Rogers [27] penned that a good opinion leader will make a successful endorsement, but to what extent in publicizing a green IT product?

Social influence mostly communicated in the form of words. Word-of-mouth refers to verbal communication between consumers and other people or parties, such as family, friends and media. When a consumer satisfied with a product/service, he/she will suggest other people [4]. Encouraging words from other people can sway consumers' green attitudes and practices [4]. Millennial people, who were born between the 1980s and late 1990s, are more likely to share information about green practices to other people [4]. Together with Venkatesh et al. [29], gender, age and experience are moderating effects of Social Influence. Thus, moderating effects of gender, age and educational experience are expected to be found. Social Influence in UTAUT2 is already a fine construct, which can be used in this study with merely a change of a study subject.

Hypothesis 4: Social Influence positively influences the intention to purchase/use green IT product and the effect can be moderated by age, gender and educational experience.

2.3. Constructs of Green Individual Acceptance

Environmental Concerns & Habits **(ECH)** – Environmental awareness is an undeniable influence in behavior, intention and decision [19, 28]. In other words, the level of environmental care of an individual (or an organization) potentially leads to greener attitude and behaviors (e.g. purchase, procurement, use) [17]. In addition, age and gender are found to have an interacting effect in this relationship [31]. Therefore, age and gender are expected to have moderating effect upon a link between the concern and green IT consumption.

In UTAUT2, *Habit* means automatic human behaviors due to previous learning or an individual automaticity [29]. This construct can be used to predict the willingness to purchase and use IT products in the future. Venkatesh et al. [29] discovered that an IT involved habit's effect will be stronger for mature men who have more experience. *Habit* is a result and a reason for the individual to continuing usage or repurchase of an IT product or service. Likewise, careless habit can be a reason for ignorance.

Use of plastic bags has become a major concern of developed and developing countries. In one year, Thai people make 0.343 million tons of wastes, including plastic bags, but only 12% of them were managed properly [35]. The awareness of the issues results into behavioral changes [36]. Reckless electricity use, littering and the likes are careless habit as well.

Questions about environmental awareness might be the abstract in a consumer's perspective. To make this measurement clear, there should be examples of habits/behaviors. This study accounts littering, reckless use of water/electricity, one-time use of plastic bags and the likes, as habits and adapted them into the questionnaire items.

Hypothesis 5: Environmental concern and habit positively influence the intention to purchase/use green IT products and the effect can be moderated by age, gender and educational experience.

Intention to Purchase/Use Green IT Products **(IPG)** – DeLone and McLean [26] believed that some study subjects are difficult to be scaled. They brought 'Intention to use' into IS Success Model as an alternative measurement of consumption behavior [26, 28]. A green IT product is believed by many consumers that it is an intangible object rather than a tangible one [11-13]. Basically, there are factors to drive intention to purchase/use a product, as follows: its benefit is perceived, worthiness between gain and loss, requires less effort in purchase and usage, social motivation is perceived [26, 27, 29]. Therefore, for the intention for green IT consumption, a consumer needs to: (1) believe in green IT benefits, (2) ready to sacrifice some resources (money, time and product functionalities) for the environment, (3) be able to identify green indicators, (4) be prompted by social factors and (5) be aware of the environmental situation.

2.4. Constructs of Green Organizational Impact

Intention to Support Green-Imaged Business **(ISG)** – Intention to buy and use a product is one thing and the intention to support a business could be another. There is always a

relationship between a consumer and a business. Firstly, a business cannot survive without customers and will need to maintain the good relationship to improve their firm image [18]. The other way for businesses to polish their image is by integrating corporate social responsibility (CSR) [18], which includes environmental responsibility. A term 'green image' means a series of consumers' perceptions about a firm regarding environmental commitments and concerns [4]. Good image can get consumers' attentions [18, 21] and spreading word-of-mouth [4]. A firm with a trustable green image/reputation thereby gains a competitive advantage. Quality of the eco-friendly product plus green image will contribute to the satisfaction and loyalty of consumers and this relationship will grow stronger [21], especially when the qualities meet consumer's awareness [1].

This study suggests that when an individual intends to be a green consumer, this person will have a positive attitude toward green-imaged businesses. As this factor is an intention, the Behavior intention [29] can be adapted once again to this measurement item.

Hypothesis 6: The intention to support green IT products positively influences the intention to support green imaged business.

***Perceived Green Organizational Policy* (PGP)** – Sustainability culture (of a firm) can be referred to the organizational recognition of the need to reduce the negative impact on communities and the environment [6]. With the culture of sustainability, employees will be learned about green practices [5]. In many educational institutions, sustainable development topics are available in curriculums. Likewise, students will be taught about green practices [2]. With this in mind, if green culture is available in a system, personnel will be 'greenified' sooner or later. From the previous agenda [9], questions for this construct are based on annual sustainability reports from 83 organizations, which were discovered that there are six highlighted eco-friendly policies, as follows: air quality management, water usage management/efficiency, wildlife restoration, waste management, recycling, and energy management/efficiency.

The purpose of this construct is to scale individual perception of green policy of an organization (this takes educational institutions in into consideration for pre-working age respondents), using three-point scales, where 1 = none, 2 = uncertain and 3 = available, to observe the individual perception (or personnel awareness of their firm policy). The numerical outcome will show a degree of impact on the two intention behaviors. This study hypothesizes that if a person involves with green organizational culture, he/she will be motivated to have the intentions in purchasing/use green IT products and support green businesses.

Hypothesis 7: Perceived green organizational policy positively influences the intention to purchase/use green IT product and support green-imaged businesses.

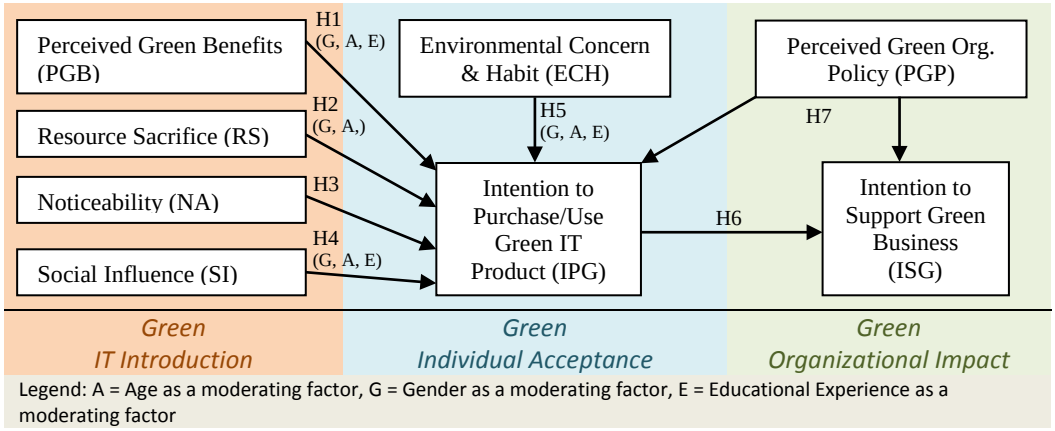

Figure 1. Study framework with hypotheses

3. Research Methodology

3.1. Validity and Reliability

All questionnaire items must be examined validity and reliability. Content validity testing is measured by five experts and the overall index of item-object congruence (IOC) was 0.841. Some questionnaire items are modified as suggested by the five experts. Noticeability (NA) and Perceived Green Policy (PGP) are not five-point Likert scale as others are. These two constructs are treated as a single-indicator variable and represented by their mean scores (equation 1).

$$NewValue = RoundUp\left(\frac{5(\sum FactorScore)}{AmountOfQuestion}\right) \quad (1)$$

In the pilot test, 30 questionnaires were analyzed. For reliability testing, the Cronbach's alpha coefficient (α) scores were, as follow: PGB (.910), RS (.833), NA (.503), SI (.883), ECH (.948), IPG (.930), ISG (.924) and PGP (.772). NA and PGP were single-indicators. Thus, the scores were lower than the rests.

3.2. Study Sample and Data Collection

This research set in Thailand. The survey requires respondents who are familiar with technology products and most Thai people are capable to be participants. When the population is huge, Yamane [40] suggested that the suitable amount of a study sample should be 400 people (or more) for 95% confidence level. This study uses mixed-survey (online and printed questionnaires). The online was distributed over social media/communities (e.g., Facebook, Twitter, online forums). The printed questionnaires were distributed among various locations (e.g., universities, banks, hospitals, shopping malls). All incomplete questionnaires were removed. The return was 618 respondents (male 298 and female 320).

4. Hypothesis Testing

The study used AMOS 20 and Structural Equation Model techniques to test hypothesis.

4.1. Multicollinearity diagnosis

Multicollinearity diagnosis is employed to detect unauthorized relationships between factors. All questionnaire items were tested multicollinearity diagnosis. Tolerance values and Variance Inflation Factor (VIF) of all measurement items were far beyond the value 1 and below 10, respectively. These values show that this study can process to discriminant validity and convergent validity testing. If this study tests convergent validity before discriminant validity, an existence of discriminant validity issue may cause changing model fitness value. Therefore, this study tests discriminant validity before the other tests.

4.2. Discriminant Validity

This paper chooses to measure factor heterogeneity by comparing a square root of Average Variance Extracted (AVE) between factors. Table 2 shows the comparison of factors. Noticeability (NA) and Perceived Green Policy (PGP) are single-indicator variables. Therefore, they are not included in the comparison.

Table 2. Discriminant validity testing

Factor	AVE	$\sqrt{AVE}$	Correlations				
			PGB	RS	SI	ECH	IPG
PGB	0.601	0.7752					
RS	0.440	0.6633	***0.83***				
SI	0.652	0.8075	0.50	0.46			
ECH	0.641	0.8006	0.63	0.65	0.36		
IPG	0.653	0.8081	0.74	0.74	0.45	***0.88***	
ISG	0.643	0.8019	***0.79***	0.75	0.49	0.78	***0.93***

Table 3. Solved discriminant validity issue result

Factor	AVE	$\sqrt{AVE}$	Correlations				Removal
			PGB	RS	SI	ECH	
PGB	0.624	0.7899					PGB_1
RS	0.579	0.7609	0.75				RS_3
SI	0.652	0.8075	0.50	0.46			-
ECH	0.678	0.8234	0.63	0.59	0.35		ECH_1, ECH_4
IPG + ISG	0.664	0.8149	0.78	0.71	0.48	0.79	IPG_1, IPG_3, ISG_1

In Table 2, the correlation between PGB and RS was 0.83, but a square root of AVE of PGB and RS was only .775 and .663, respectively. The same phenomenon also occurred to PGB - ISG, ECH - IPG, and IPG - ISG. Some observed variables in the constructs need to be reasonably removed. However, IPG - ISG has very serious issue and cannot be solved by removing items. According to Farrell [41], merging two factors may solve the issue. This suggests that IPG and ISG are appropriate to be combined. Table 3 presents the final results.

4.3. Convergent Validity

The fitness indices of measurement model during Confirmatory Factor Analysis (CFA) were: X^2/DF = 2.022, SRMR = .027, RMSEA = .041, NFI = .966, CFI = .982, GFI = .965, AGFI = .943 and Holter's Critical N = 387. Factor loadings of all factors were higher than .60.

5. Hypothesis Testing Result

Table 4 presents the result of all hypotheses and closing with discussions.

Table 4. Regression weights (all factors to IPG + ISG)

Factor	Moderated correlation (and p-value)							
	None	**G**	**A**	**E**	**G×A**	**G×E**	**A×E**	**GAE**
PGB	**.316** (.000*)	.008 (.916)	**-.207** (.000*)	**-.317** (.000*)	**-.165** (.006*)	.121 (.143)	-.105 (.433)	-.091 (.069)
RS	**.155** (.017*)	-.104 (.160)	.079 (.140)	**.206** (.013*)	.088 (.096)	-.087 (.349)	-.085 (.504)	-.024 (.632)
NA	**.066** (.020*)	.013 (.568)	.002 (.933)	-.007 (.743)	.003 (.907)	.030 (.188)	.027 (.245)	.013 (.502)
SI	.056 (.109)	.055 (.096)	-.034 (.333)	-.020 (.560)	.040 (.272)	.012 (.716)	.033 (.297)	.028 (.356)
ECH	**.435** (.000*)	.054 (.175)	**.112** (.003*)	.066 (.081)	.041 (.271)	-.055 (.176)	.061 (.064)	.042 (.188)
PGP	**.088** (.004*)	-.018 (.448)	.021 (.377)	.031 (.177)	-.015 (.517)	-.012 (.598)	.008 (.701)	.024 (.234)
R^2	.78	.79	.80	.81	.79	.79	.80	.79

Hypothesis 1 is accepted. Firstly, Perceived Green Benefit (PGB) positively influenced the combination of the two intentions, which are the intention to Purchase/Use green IT

Product and Intention to Supporting Green Imaged Business (IPG + ISG) (β = .316, p = .000, R2 = .78). Secondly, age (β = -.207, p = .000, R2 = .80), educational experience (β = -.317, p = .000, R2 = .81), age × gender (β = -.165, p = .006, R2 = .79) moderated this relationship.

Hypothesis 2 is partially accepted because age and gender cannot modify the relationship. Resource Sacrifice (RS) positively influenced the combination of the two intentions (IPG + ISG) (β = .155, p = .017, R2 = .78). Age (p = .140) and gender (p = .160) were not moderated the relationship. Educational experience was unexpectedly moderated the relationship (β = .206, p = .013, R2 = .81).

Hypothesis 3 is accepted. Noticeability (NA) positively influenced the combination of the two intentions (IPG + ISG) (β = .066, p = .020, R2 = .78) and there was no moderator to be concerned.

Hypothesis 4 is rejected. Social Influence (SI) was insignificant to the two intentions (IPG + ISG) (p = .109, R2 = .78) and no moderating effect found. This result is opposite to many prior technology acceptance studies.

Hypothesis 5 is partially accepted because only age moderated the relationship. Environmental Concern & Habit (ECH) positively influenced the combination of the two intentions (IPG + ISG) (β = .435, p = .000, R2 = .78). Gender has not shown modification on this path (p = .175), but age did (β = .112, p = .003, R2 = .80).

Hypothesis 6 is rejected. According to the lack of the discriminant validity, the two intentions (IPG + ISG) had to be integrated as suggested by Farrell [41].

Hypothesis 7 is accepted. Perceived Green Policy (PGP) was significant to the combined intentions (IPG + ISG) (β = .088, p = .004, R2 = .78). There was no moderating effect on this relationship.

6. Research Findings

6.1. Discussion and Implication for Stakeholders

This study investigates the links between the individual perceptions of green IT benefits, individual resource sacrifice, environmental knowledge, environmental concern, social influence, and green consumption behaviors. According to the result, the knowledge (and perception) of a green product characteristics and the eco-labels are not enough in the society. When consumers cannot distinguish a green product from non-green one, this is the major problem. A lack of the knowledge becomes an obstacle to the green IT product adoption. This recommends us that green knowledge dissemination is critically needed.

The green benefits perception of Thai consumers is great. Nevertheless, without the knowledge of the green characteristics and the eco-labels, a consumer will not be able to obtain a green IT product. In addition, the green benefits perception might be diminished when the consumer gets older and has higher educational experience, perhaps due to increasing skepticism.

For the greater good, a consumer can spend more money and accept reduced product excessive functionality/performance for the environment. This voluntariness will become stronger with higher educational experience. However, it does not mean businesses can charge consumers because of the ‘greenification.’ Businesses need good strategies (e.g., a cost leadership) to make green IT products more reachable for all consumers.

Unexpectedly, the social influence has had no power to drive the green IT product adoption. This study divided the social influence into three dimensions (close relationship, workplace, and media) to elaborate the phenomenon. According to descriptive statistics, Thai people are holding workplace cultures (and co-workers) influence as the first priority, followed by family and friends. Sadly, media influence has been frown. This should wake commercial enterprises and informs them that famous celebrities may not suit eco-friendly advertising.

Thai people have excellent environmental concern according to the outcome. They perceived what are right and wrong regarding to the eco-system. Older people have better

environmental concerns than younger people. This is a good sign of green IT readiness of Thai consumers. A credible government and good green-imaged businesses have to stimulate the people's environmental concern by the green knowledge dissemination (e.g., benefits, characteristics, labels).

The result shows that Thai organizations (all sectors) are operating with environmental protection policies in their minds. Nonetheless, sometimes, personnel learn and follow organizational culture, but not thoroughly (or not voluntarily). Thus, strong organizational influence does not mean well perception of organizational polices in respect of the environmental protection/conservation. However, the organizational green polices still has impact on the willingness to acquire a green IT product. This means the green polices are parts of sustainable development.

Sustainable development will be shaped if a governmental, business, and consumer sections work together. Firstly, the knowledge dissemination is needed to blow the obstacles of the individual green IT acceptance. Thai consumers need to know what a green IT product looks like. Advertising is a powerful tool to reinforce people eco-concern even without a famous celebrity on the screen. Educational system is also one of good sources of the green knowledge dissemination. Green image and reputation is important (as well as good credibility of a government) if a business has a green IT product to sell. Without them, a consumer will ignore the green product, the brand and the advertising.

7. Limitation

This research encountered a major limitation, which is discriminant validity issue. The quantitative outcomes were not so clear since the two intentions were integrated. Future researches should pay more attention if there are more than one intention predictors. In case of insufficient discriminant validity, if dropping or combining methods cannot solve the problem, a single-indication conversion should be a solution.

8. Conclusions and Future Research

The objective of this paper is to study factors of consumer's intention to support green IT product, which includes support green-imaged business. The results indicate that knowledge of environmental friendly labels is urgently needed. The green knowledge inaccessibility is a great obstruction to green IT product consumption. Although cognition of green IT benefits and environmental concern are excellent, Thai consumers and green IT products will not be easily met. Accordingly, the consumer's need of green IT product will be absent. This includes lack of individual's resources sacrifice for the environment as well. Social impact has not enough influence to the intention to support green IT product. However, a workplace and an educational institution atmosphere (eco-friendly policies) will slightly encourage related people to support green IT products and businesses.

This research contributes concern parties by addressing the obstruction of green IT product diffusion and prioritized influencing factors. The greatest obstruction is lack of green label knowledge. The knowledge dissemination is absolutely and immediately needed, which a government, the private sector and household sector need to cooperate. Not only it can lower the obstruction, but it also paves a road to sustainable development.

For a future study, this research points out that the study of knowledge dissemination of green IT (e.g., appearances, benefits) is required. It will reveal other obstacles and solutions of green IT product adoption issues. A future study might add different influencing factors into a framework of green IT product diffusion. This possibly shows differentiation of an individual green IT support in different societies or cultures. It is a challenge and groundbreaking if future studies render an adoption framework without employing TAM-based theory. We suggest a ground theory, which can be started with qualitative method (e.g., interview), to establish a study framework. Furthermore, a mix-method (quantitative and qualitative) and a multiple group analysis will contribute better benefits to the study field. For study setting in Thailand, we suggest the future study to consider His Majesty King Bhumibol

Adulyadej's philosophy (e.g., sufficiency economy philosophy) as an important factor of green IT adoption. Lastly, future study context of consumers green IT acceptance should be scrutinized into green supply chain researches for more academic contribution.

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